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THE
ONTARIO WATER RESOURCES
COMMISSION

WATER POLLUTION SURVEY

of the

TOWNSHIP OF CALEDON

COUNTY OF PEEL

TD
380
.C35
1967
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1967

TOWNSHIP OF CALEDON - 1967
COUNTY OF PEEL

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**TD
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Report on a water pollution
survey of the township of
Caledon, county of Peel.

80844

R E P O R T

on a

WATER POLLUTION SURVEY

of the

TOWNSHIP OF CALEDON

County of Peel

December - 1967

District Engineers Branch

DIVISION OF SANITARY ENGINEERING

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R E P O R T

INTRODUCTION

The purpose of this survey was to locate and record significant sources of water pollution within the Township of Caledon. Surveys of this nature are conducted routinely throughout the Province of Ontario by the Ontario Water Resources Commission and form a basis for evaluating any existing or potential sources of pollution.

Recommendations are made pertaining to pollution abatement and the Commission expects that corrective measures will be taken by offending parties.

I GENERAL

The Township of Caledon, located in the County of Peel, has a population of 3,999 (1967 Municipal Directory). Highway 10 is the main thoroughfare and traverses the centre of the township in a north-south direction. The Police Village of Caledon, the central point in the township, is located on Highway 10, approximately 30 miles from Lake Ontario.

The township is primarily zoned for farming although some urban-type development exists in the police villages of Alton, Inglewood and Caledon. Some urban-rural development on large lots has progressed and there has recently been an increase in this type of premises.

II DRAINAGE

The township is drained by the Credit River and its

tributaries, with the exception of a small south-east portion which drains to Centreville Creek, a tributary of the Humber River.

III WATER USES

(1) Recreational

The Credit River is used extensively for swimming and fishing. There are several private fishing areas along the river and the most wide-spread public use of the recreational facilities is in supervised conservation areas.

(2) Irrigation

The Credit River and its tributaries are used to a limited extent for irrigation of crops and golf courses.

(3) Conservation

The Credit River is under the jurisdiction of the Credit Valley Conservation Authority which operates a public park at Belfountain.

(4) Domestic Supply

The drinking water supplies in the township are obtained by means of private wells. The aquifers generally yield sufficient and good quality water. The only communal water supply system in the township is in the Police Village of Inglewood.

The Inglewood system serves approximately 18 premises. The water supply is a spring located on the property owned by Mr. D. Graham. The distribution system is owned by the Canadian Pacific Railway.

The Inglewood village trustees have arranged with the CPR and Mr. Graham to manage the distribution of water and to collect water rate charges through an appointed water commissioner.

The quality of the water at the Inglewood supply has shown sporadic bacterial impairment that appears consistent with surface water pollution. The OWRC has made recommendations the completion of which should minimize the possibility of surface runoff gaining access to the supply. If the incidence of coliform organisms in the supply persists, chlorination facilities should be provided to assure a safe water supply.

IV WATER POLLUTION

(1) Sanitary Waste Disposal

There are no municipal water pollution control plants within the township. Domestic wastes are treated in private sewage disposal systems. Generally, sewage disposal on individual lots has been adequate.

(2) Industrial Waste Disposal

Industry in the township is minimal. There are no known significant water pollution problems resulting from industries in the township.

(3) Refuse Disposal

A refuse disposal site has recently been established on the east half of Lot 15, Concession 3 West. Providing dumping is

restricted to normal domestic garbage, and in an area sufficiently isolated from the Credit River, pollution problems should not occur.

The two former disposal sites located at Lot 24, Concession 3 (north of Alton) and side road No.15 (between the second and third line) will reportedly be abandoned and filled with relatively clean fill and graded. These sites will require inspection periodically to determine if the filling and grading prevents surface water pollution during seasonal runoff.

V DISCUSSION OF WATER QUALITY

Samples were collected from local watercourses within the township in May and September, 1967. The results of the laboratory analyses are recorded in the appended table and the locations are indicated on the enclosed map. The significance of the analyses is also outlined in the appendices.

The Credit River and its tributaries within the Township of Caledon were generally in good condition. The samples collected from Caledon Lake were all within the Commission objectives for surface water in Ontario.

Slight impairment of Shaws Creek was evident downstream from the Police Village of Alton. No direct discharges to the creek were located during the investigations. Reportedly, evidence of malfunctioning septic tank systems in the area have not been prevalent. Regular sampling of the downstream sampling point CSH47.9 for comparative

analysis will offer more information in this regard.

The results of the chemical analyses of the samples collected downstream from Orangeville at Highway 10 (Sampling Point No. C-52.0) indicates residual impairment originating from the Orangeville WPCP. The provision of secondary treatment of the total flow at the plant, the design of which has been approved, will improve the water quality at this point.

VI SUMMARY

A water pollution survey of the Township of Caledon was carried out in the summer of 1967.

In general, the Credit River and its tributaries within the township were in good condition. Some stream impairment was revealed downstream from the Police Village of Alton and the Town of Orangeville.

The proposed alterations to the Orangeville WPCP will improve the water quality downstream from the town and the results of the monitoring program of Shaws Creek downstream from Alton will be reviewed to determine if the impairment is recurrent.

The water pollution control requirements of the previous type of development appears to be satisfied by private sewage disposal systems. If urban development is contemplated some sort of communal disposal system would probably be required. The acceptability of any type of sewage treatment facility would be governed by the ability

of the Credit River to receive wastes, as determined by waste assimilation studies.

VII RECOMMENDATION

The township should maintain an active interest in water pollution abatement and control in order to limit the factors of development which would contribute to the decline of the water quality.

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D. J. Currie,
Technician,
Division of Sanitary Engineering

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APPENDICES

GLOSSARY OF TERMS

Bacteriological Examinations - The Membrane Filter technique is used to obtain a direct enumeration of coliform organisms. These organisms are the normal inhabitants of the intestines of man and other warm-blooded animals. They are always present in large number in sewage and are, in general, relatively few in number in other stream pollutants. The results are reported as MF coliform count per 100 millilitres.

Biochemical Oxygen Demand (BOD) - The BOD test indicates the amount of oxygen required for stabilization of the decomposable organic matter found in the sewage, sewage effluent, polluted waters or industrial wastes by aerobic biochemical action. The time and temperature used are 5 days and 20°C respectively.

Oils and Ether Soluble Materials - These include oils and all other ether soluble materials such as tarry substances and greases. The presence of these pollutants renders water difficult and sometimes impractical to treat, either for industrial or domestic use. Oils make the stream unsightly and the water unfit for bathing. They coat water craft and are a hazard to wild fowl.

Phenolic Compounds - Phenols and phenolic equivalents were measured by the Gibbs Method with modifications. Phenols react with chlorine to produce intensely aromatic compounds. These compounds, even when highly diluted, may give a taste and odour to the water which is variously described as medicinal, chemical or iodoform. Phenols taint

fish and are toxic to fish, depending on the concentration. Normal water contains no phenolic compounds.

Solids - The analyses for solids include tests for total, suspended and dissolved solids. The former measures both the solids in solution and in suspension. Suspended solids indicate the measure of undissolved solids of organic or inorganic nature, whereas the dissolved solids are a measure of those solids in solution.

Total Kjeldahl - Total Kjeldahl is the measure of total nitrogenous material present except that measured as nitrite and nitrate nitrogens. The total Kjeldahl less the ammonia nitrogen measures the organic nitrogen present. Ammonia and organic nitrogen determinations are important in determining the availability of nitrogen for biological utilization. The normal range in surface waters for total Kjeldahl would be 0.1 to 0.5 parts per million.

Alkyl Benzene Sulfonate (ABS)

The alkyl benzene sulfonate portion of the anionic detergents is reported in ppm. The test is generally employed to detect the presence of domestic wastes. The popular use of synthetic detergents for general cleaning purposes has resulted in the incidence of residual ABS in domestic waste discharges.

As an objective, the ABS concentration should not exceed 0.5 ppm in water used for domestic purposes.

TABLE I

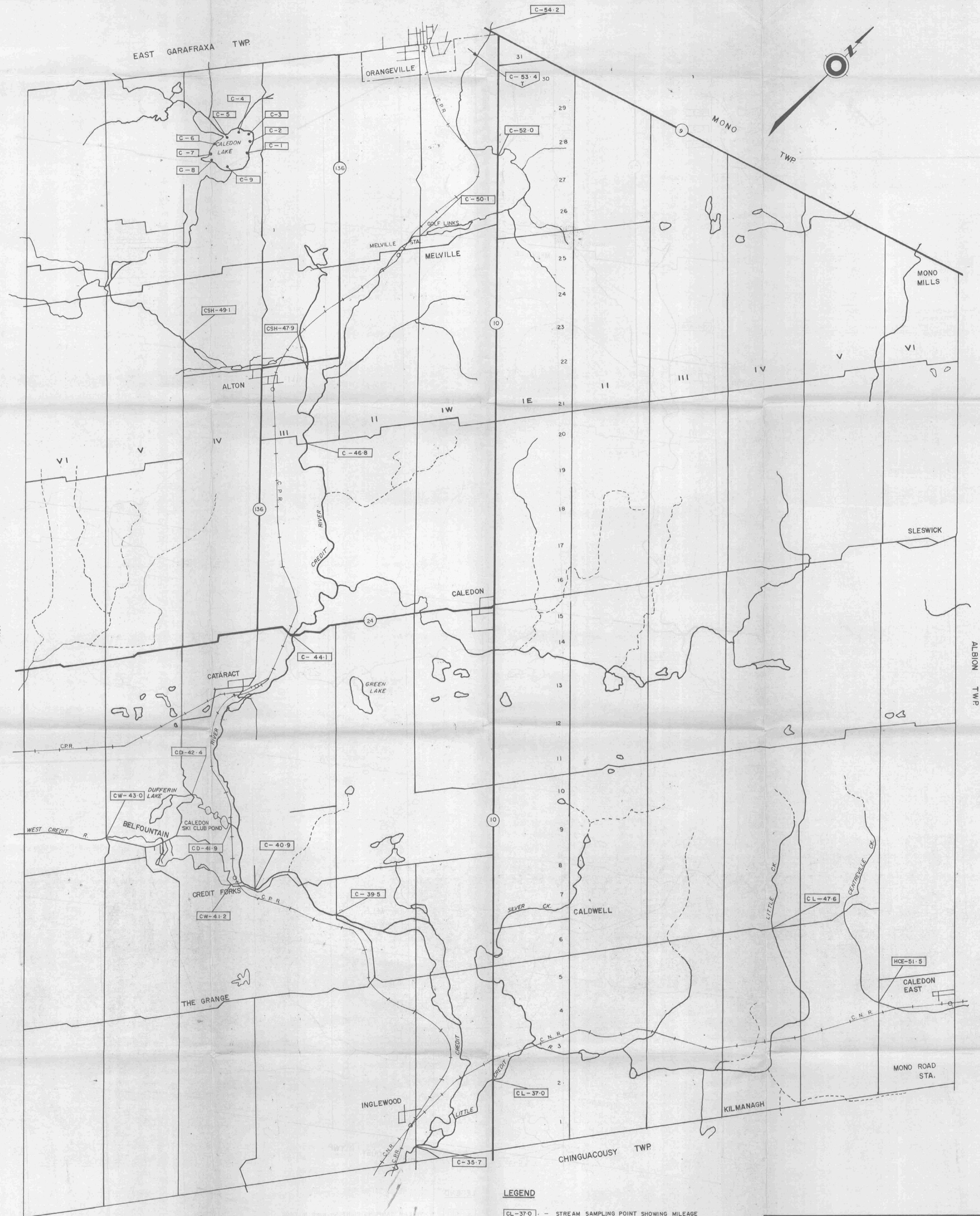
<u>Sample Point</u>	<u>Description</u>	<u>Date</u>	<u>Coliforms per 100 ml</u>	<u>5-Day BOD</u>	<u>Solids (ppm)</u>			<u>Anionic Detergents as ABS</u>
					<u>Total</u>	<u>Susp.</u>	<u>Diss.</u>	
C-35.7	Credit R. at Inglewood Bridge	May 25/67 Sept.7/67	48 216	2.1	296	1	295	
CL-37.0	Little Credit River at Highway 10	May 25/67 Sept.7/67	32 392	1.9	282	1	281	
C-39.5	Credit River at Second Line West	May 25/67 Sept.7/67	92 168	2.2	316	3	313	
C-40.9	Credit River downstream from Forks of the Credit	May 25/67 Sept.7/67	156 148	2.2	284	1	283	
CW-41.2	West Credit River upstream from Forks	May 25/67 Sept.7/67	164	2.1	296	1	295	
CL-47.6	Little Creek at No.5 Side Road	May 25/67 Sept.7/67	40 1100	1.3	318	1	317	
CW-43.0	West Credit River at 5th Line West	May 25/67 Sept.7/67	228 84	1.8	308	1	307	
C-44.1	Credit River at Highway 24	May 25/67 Sept.7/67	1300 1200	1.7	264	1	263	
C-46.8	Credit River at No.20 Side Road	May 25/67 Sept.7/67	1300 1900	2.6	302	1	301	

TABLE I - CONT'D.

<u>Sample Point</u>	<u>Description</u>	<u>Date</u>	<u>Coliforms per 100 ml</u>	<u>5-Day BOD</u>	<u>Solids (ppm)</u>			<u>Anionic Detergents as ABS</u>
					<u>Total</u>	<u>Susp.</u>	<u>Diss.</u>	
CSH-47.9	Shaws Creek at Highway 136 downstream from Alton	May 25/67	13,000	2.2	272	1	271	0.0
		Sept.7/67	1,100					
CSH-49.1	Shaws Creek at 4th Line West upstream from Alton	May 25/67	224	1.9	382	1	281	0.1
		Sept.7/67	1,500					
C-50.1	Credit River at First Line West of Melville	May 25/67	192	3.6	382	1	381	0.1
		Sept.7/67	132					
HCE-51.5	Centreville Creek at 5th Line East	May 25/67	84	1.7	292	1	291	0.1
		Sept.7/67	2,600					
C-52.0	Credit River at Highway 10 downstream from Orangeville	May 25/67	296	5.0	404	1	403	0.1
		Sept.7/67	248					
C-54.2	Credit River at township boundary	May 25/67	196	21	326	1	325	0.1
		Sept.7/67	1,500					
CL-1	Caledon Lake as shown on map	Aug.10/67	1,280					
CL-2	"	"	120					
CL-3	"	"	190					
CL-4	"	"	500					
CL-5	"	"	180					
CL-6	"	"	104					

TABLE I - CONT'D.

<u>Sample Point</u>	<u>Description</u>	<u>Date</u>	<u>Coliforms per 100 ml</u>	<u>5-Day BOD</u>	<u>Solids (ppm)</u>			<u>Anionic Detergents as ABS</u>
					<u>Total</u>	<u>Susp.</u>	<u>Diss.</u>	
CL-7	Caledon Lake as shown on map	Aug.10/67	124	1.4	274	12	262	
CL-8	"	Aug.10/67	164					
CL-9	"	"	108					
CD-42.6	Creek downstream from Dufferin Lake	Sept15/67	80	0.8	310	4	306	
CD-42.0	Creek downstream from Caledon Ski Club	Sept15/67	330	0.5	274	4	270	



LEGEND

- [CL-37-0] - STREAM SAMPLING POINT SHOWING MILEAGE
- [C-54-2 T] - OUTFALL SHOWING STREAM AND MILEAGE
- TYPE OF OUTFALL
- T - TREATMENT PLANT EFFLUENT
- [C-7] - CALEDON LAKE SAMPLING POINTS

ONTARIO WATER RESOURCES COMMISSION

TOWNSHIP OF CALEDON

WATER POLLUTION SURVEY

1967

SCALE:	1/2	0	1MILE
DRAWN BY:	A. LOMBARDI	DATE:	AUGUST 1967
CHECKED BY:		DRAWING NO.	67-50